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June 29, 2005

CCN 300382

Mr. John Sharkey
Idaho Department of Water Resources
322 E. Front Street
Boise, ID 83720-0098

SUBMITTAL OF ADDITIONAL INFORMATION AND REQUEST FOR APPROVAL OF PERMANENT ABANDONMENT FOR CLASS V SHALLOW INJECTION WELLS MAH-CA-CT-319, 40-CPP, 45-CPP, AND 46-CPP

Reference: C. S. Mascareñas, INEEL, letter to M. Piechowski, IDWR, Idaho National Engineering and Environmental Laboratory Shallow Injection Inventory Information and Well Abandonment Forms, November 18, 2004, CCN 53158

Dear Mr. Sharkey:

As you know, a letter dated November 18, 2004, was submitted to Mr. Mike Piechowski of the Idaho Department of Water Resources (IDWR) requesting approval of the proposed method of permanent abandonment for four Class V shallow injection wells at the Idaho National Laboratory (INL; formerly the Idaho National Engineering and Environmental Laboratory). The referenced letter provided a description and proposed method of abandonment for each of the four shallow injection wells, MAH-CA-CT-319, 40-CPP, 45-CPP, and 46-CPP. Per your request during a conference call held on February 9, 2005, between you and members of my staff, additional information for each of the four Class V shallow injection wells is enclosed so you can fully evaluate the issue.

The November 18, 2004, submittal was similar to several previous INL requests submitted and subsequently approved by the IDWR. However, during the February 9, 2005, conference call, you indicated that the proposed methods of permanent abandonment did not, in your view, meet the regulatory requirements defined in IDAPA 37.03.03, "Rules and Minimum Standards for the Construction and Use of Injection Wells in the State of Idaho." Specifically, you stated that INL's proposed methods of abandonment did not meet the definition of permanent abandonment found in IDAPA 37.03.03.010.38 that states, "The discontinuance of use of an injection well in accordance with current IDAPA 37.03.09, 'Well Construction Standards.' Permanent abandonment requires plugging the well bore with bentonite, grout, cement grout, concrete, or other impermeable material to prevent the upward or downward migration of fluids."

The definition of permanent abandonment makes specific reference to the Well Construction Standards (IDAPA 37.03.09). This regulation states as its "Scope" at 37.03.09.001.02 that "These rules are applicable to all water wells, monitoring wells, low temperature geothermal wells, injection wells and other artificial openings and excavations in the ground *which are more than eighteen (18) feet in vertical depth below land surface as described in these rules.* Many holes drilled into the ground do not constitute a well." Similarly, the regulation defines the term "well" at IDAPA 37.03.09.010.30: "An artificial excavation or opening in the ground *more than eighteen (18) feet in vertical depth* below land surface by which ground water of any temperature is sought or obtained. Well also means *any injection well more than eighteen (18) feet in vertical depth below land surface . . . .*" In other words, the Well Construction Standards only apply to injection wells *deeper than 18 feet.* Because the definition of permanent abandonment found in IDAPA 37.03.03.010.38 refers to these Well Construction Standards, it follows that the requirement for the impermeable fill method is only applicable to injection wells deeper than 18 feet.

Upon further review of the regulations, it is our understanding that shallow injection wells, less than 18 feet deep, are covered by a distinct section in IDAPA 37.03.03.030 governing "Class V Shallow Injection Wells." This section has its own specific subsection .04 that governs "Permanent Abandonment" of this class of excavations. It specifically states:

> Owners or operators of shallow injection wells shall notify the Director not less than thirty (30) days prior to permanent abandonment of any shallow injection well. *Permanent abandonment shall be accomplished in accordance with procedures approved by the Director.* An Injection Well Abandonment Form shall be submitted with each notification.

This regulation allows the Director to approve additional methods (other than filling the well with an impermeable material) to be used to permanently abandon a Class V shallow injection well. While the Director would be free to require impermeable fill in a shallow injection well, the regulation clearly gives the Director the option of selecting alternative methods of permanently abandoning shallow wells that do not pose as significant a risk to the deeper aquifers.

Deep wells 100 feet or deeper may pierce otherwise impermeable clay layers and provide a pathway for contamination that would otherwise not exist. Using impermeable fill to restore the previous hydrogeology of the subsurface makes sense in that context. However, because soils down to 18 feet in depth at the Idaho Nuclear Technology and Engineering Center facility are fairly permeable and lack any natural impermeable layers, no additional environmental protection would be gained by filling these shallow injection wells with an impermeable material, since that will not prevent transmission of water through the surrounding soils to the same shallow depth of 18 feet. It would only create an impermeable column surrounded by permeable soils.

In conclusion, IDAPA 37.03.03.030.04 allows for Class V shallow injection wells to be permanently abandoned using procedures approved by the Director. This allows for methods other than filling the shallow injection well with an impermeable material when the Director, in the exercise of his or her lawful discretion and judgment, approves the site-specific method. Therefore, INL now requests the Director exercise this regulatory authority and approve the methods described in the enclosed document to permanently abandon the four shallow injection wells MAH-CA-CT-319, 40-CPP, 45-CPP, and 46-CPP.

If you have any questions, need additional information, or would like to visit INL, please contact Mike MacConnel at (208) 526-1167.

Sincerely,

J. A. Bier for

Kliss McNeel, Director
Environmental and Regulatory Services

MGL:mab

Enclosures

cc: R. M. Kauffman, DOE-Idaho, MS 1216
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(w/o Enc.)
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